

## **5.2 FLOOD PROTECTION**

### **5.2.1 Introduction**

The purpose of the Flood Protection Element is to reduce damage to public health and property resulting from flooding. Flood protection is required as part of a General Plan by Government Code Section 63202(a).

### **5.2.2 Findings**

#### **Floodplain Characteristics**

Various areas in Shasta County are subject to flooding by rivers and creeks. Many of these same areas are also desirable locations for development as they are often characterized by level topography, good access to transportation systems, and soils well suited for agricultural operations and septic tank usage.

Development in flood-prone areas of the County has resulted in damage to property and loss of life when flooding occurred. Between 1900 and 1991, there have been no less than 16 severe floods in the Sacramento River Basin.

The private and public costs of flooding are substantial. In 1970, flooding resulted in approximately \$12 million in damages, and close to \$8 million in 1974. Problems caused by flooding include loss of life, displacement or complete destruction of buildings, water damage to buildings and furnishings, siltation, temporary loss of utilities, road damage, transportation slowdowns, loss of goods and materials, damage to bridges by objects floating downstream, and the threat of waterborne disease.

Despite the potential hazards involved with development in floodplains, they remain desirable areas for a variety of land uses. In addition to residential and agricultural uses, flood-prone areas frequently offer good recreational opportunities and often provide habitat for many forms of wildlife, including rare or endangered animal and plant species. The Sacramento River floodplain is an excellent example of such an area in Shasta County.

Damages resulting from the development of flood-prone areas can be minimized through floodplain management. This management concept encompasses a comprehensive program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control projects, and floodplain management regulations.

The National Flood Insurance Act of 1968 offers an important incentive to communities for implementing a floodplain management program. In communities which have adopted floodplain management regulations, owners of property located in flood-prone areas may obtain federally subsidized flood insurance. Shasta County has adopted such floodplain management regulations.

The boundary of the 100-year floodplain is the basic planning criterion used to distinguish areas where flood hazards justify the establishment of floodplain management regulations. Outside this boundary, the degree of flooding risk is not considered sufficient to justify the imposition of floodplain management regulations, while inside the 100-year floodplain some level of regulation is required to protect public health, safety, and welfare.

For purposes of the National Flood Insurance Program, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The relationship between the floodway and the floodway fringe and their significance to floodplain development is shown in Figure FL-1. The precise boundaries of those two areas are delineated on maps and described in reports produced by the Federal Emergency Management Agency (FEMA) for various creeks in the County which have experienced or are expected to experience significant development.

The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of development so that the 100-year flood can be carried away without increasing the flood height more than one foot.

The area between the floodway and the boundary of the 100-year floodplain is termed the floodway fringe and encompasses the portion of the floodplain that could be used for development without increasing the surface elevation of the 100-year flood more than 1.0 foot at any point.

Once the floodway and the floodway fringe have been distinguished within the 100-year floodplain, different development standards must be formulated for each area. These standards have two functions. First, they are designed to minimize loss of life and property damage by: (1) controlling the types of land uses which are permitted, and (2) prescribing certain construction methods. Second, they are intended to preserve the ability of the floodway to discharge the 100-year flood.

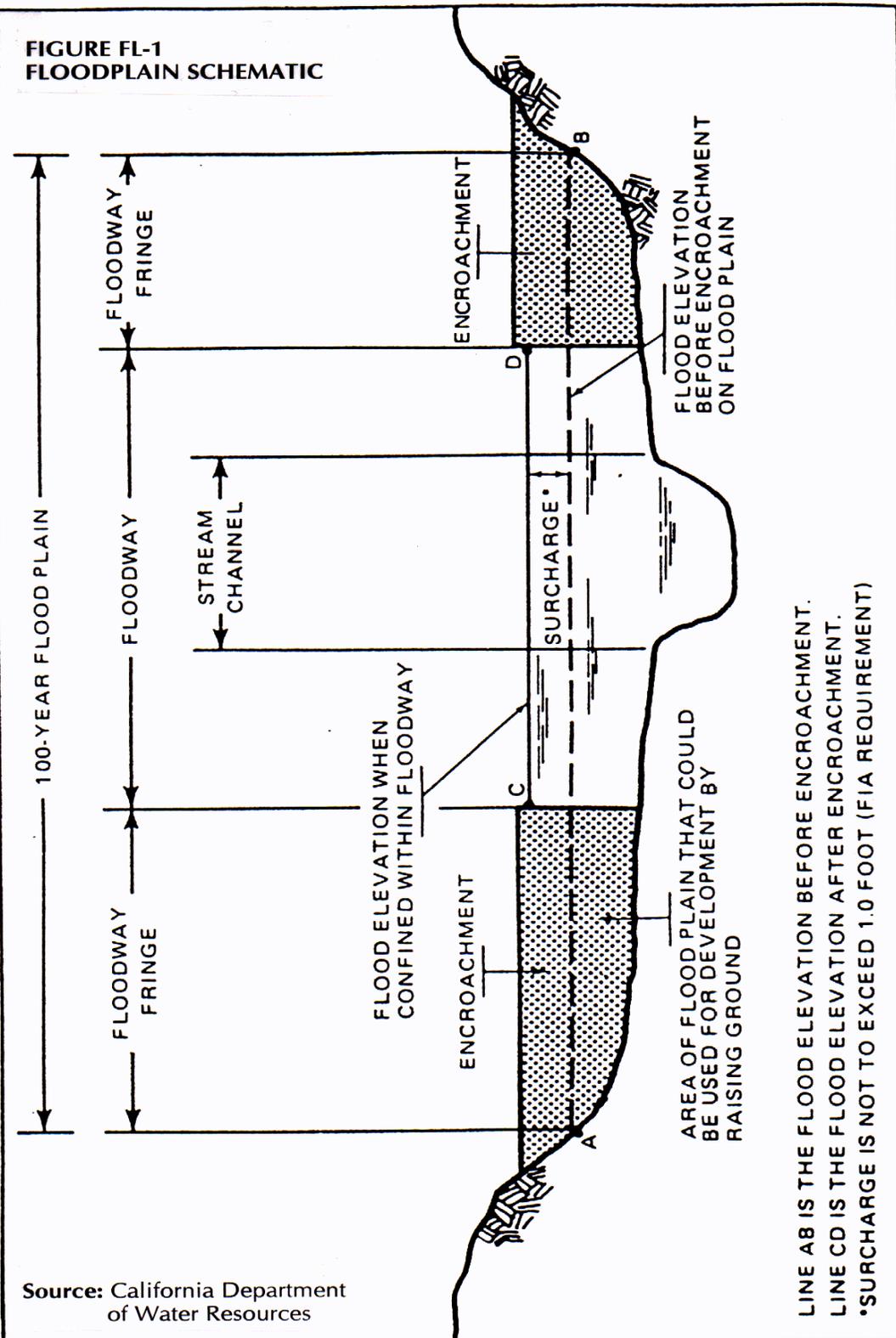
National Flood Insurance Program information should serve as the basis for land use and zoning designations in floodplain regions during the implementation phase of the planning process.

Heavy winter rains in the Sacramento Valley and subsequent flooding of the Sacramento River frequently results in severe erosion of the river's banks and loss of valuable agricultural soil and riparian vegetation as well as life and property.

In addition to problems concerning 100-year flooding in the County, there are drainage problems that are unique to the urban and town centers. These problems are created by development in the watershed areas upstream from existing inadequate drainage facilities. The development of watershed areas always increases runoff downstream. This is due to the development of land, which in its current state, absorbs most of the rainfall where paved areas and rooftops do not. This increases the flow of water in the downstream areas, which adversely impacts existing drainage facilities and natural urban waterways.

One solution to the problem is for the County to develop programs to mitigate this effect by imposing fees on new development, which would be accumulated and used for the improvement of urban waterways and facilities downstream from that development, preserving to the extent possible, the natural environment of the urban waterway.

**FIGURE FL-1  
FLOODPLAIN SCHEMATIC**



Source: California Department of Water Resources

LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT.  
 LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT.  
 \*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FIA REQUIREMENT)

### 5.2.3 Objectives

- FL-1 Protection of public health and safety, both on-site and downstream, from flooding through floodplain management which regulates the types of land uses which may locate in the floodplain, prescribes construction designs for floodplain development, and requires mitigation measures for development which would impact the floodplain by increasing runoff quantities.

### 5.2.4 Policies

- FL-a New development in floodplains shall be regulated through zoning regulations addressing land use type, density, and siting of structures.
- FL-b County flood control measures should advance, insofar as possible, the goals of providing for domestic and agricultural water uses, recreation, resource conservation (including streamside vegetation and habitat) and the preservation of the scenic values of the County's water resources.
- FL-c Whenever possible, flood control measures should consist of channel diversions or limited floodplain designs which avoid alteration of creeks and their immediate environs.
- FL-d The County shall maintain emergency preparedness plans to protect the public from flooding hazards.
- FL-e New critical or high occupancy structures (e.g., schools, hospitals) shall not be located in the 100-year floodplain unless those structures and supporting utilities are designed to prevent damage and service interruption during the 100-year flood. Major access routes to such facilities should not be subject to interruption during a 100-year flood event.
- FL-f Known flood hazard information shall be reported as part of every General Plan amendment, zone change, use permit, variance, building site approval, or other land development applications subject to environmental assessment.
- FL-g Flood Hazard Maps shall be maintained by the County to aid in the project review process.
- FL-h The impacts of new development on the floodplain or other downstream areas due to increased runoff from that development shall be mitigated. In the case of the urban or suburban areas, and in the urban and town centers, the County may require urban or suburban development to pay fees which would be used to make improvements on downstream drainage facilities in order to mitigate the impacts of upstream development.